

A12s! "[]" notation for hidden.

- [c1] A method for fabricating an integrated optical isolator, comprising:
depositing a wire grid material on a magneto-optical substrate;
depositing a resist film on the wire grid material;
bringing a mold with a wire grid pattern in contact with the resist film and
compressing the mold and resist film together so as to emboss the wire grid
pattern in the resist film; and
transferring the wire grid pattern in the resist film to the wire grid material on the
magneto-optical substrate by etching.
- [c2] The method of claim 1, wherein the wire grid material comprises a metallic material.
- [c3] The method of claim 1, wherein the wire grid material comprises a dielectric material
sandwiched between two metallic materials.
- [c4] The method of claim 3, wherein the metallic materials are selected from the group
consisting of Al, Au, Cu, Ir, Mo, Ni, Os, Pt, Rh, and W.
- [c5] The method of claim 3, wherein the dielectric material is selected from the group
consisting of Si, SiO₂, and GaAs.
- [c6] The method of claim 1, wherein the resist film comprises a thermoplastic polymer.
- [c7] The method of claim 6, further comprising heating the mold and the resist film to a
temperature above the glass transition temperature of the thermoplastic polymer prior
to bringing the mold in contact with the resist film.
- [c8] The method of claim 1, further comprising coating the magneto-optical substrate with
an anti-reflective material prior to depositing the wire grid material on the substrate.
- [c9] A method for fabricating a wire grid polarizer, comprising:
depositing a wire grid material on a substrate, wherein the wire grid material
comprises a dielectric material sandwiched between two metallic materials;
depositing a resist film on the wire grid material;

- [c2]** The method of claim 1, wherein the wire grid material comprises a metallic material.

- [c3]** The method of claim 1, wherein the wire grid material comprises a dielectric material sandwiched between two metallic materials.

- [c4]** The method of claim 3, wherein the metallic materials are selected from the group consisting of Al, Au, Cu, Ir, Mo, Ni, Os, Pt, Rh, and W.

- [c5]** The method of claim 3, wherein the dielectric material is selected from the group consisting of Si, SiO₂, and GaAs.

- [c6]** The method of claim 1, wherein the resist film comprises a thermoplastic polymer.

- [c7]** The method of claim 6, further comprising heating the mold and the resist film to a temperature above the glass transition temperature of the thermoplastic polymer prior to bringing the mold in contact with the resist film.

- [c8]** The method of claim 1, further comprising coating the magneto-optical substrate with an anti-reflective material prior to depositing the wire grid material on the substrate.

- [c9] A method for fabricating a wire grid polarizer, comprising:
depositing a wire grid material on a substrate, wherein the wire grid material
comprises a dielectric material sandwiched between two metallic materials;
depositing a resist film on the wire grid material;

g a mold with a wire grid pattern in contact with the mold, compressing the mold and resist film together so as to emboss the pattern in the resist film; and

transferring the wire grid pattern in the resist film to the wire grid substrate by etching.

Method of claim 9, wherein the metallic materials are selected from the group consisting of Al, Au, Cu, Ir, Mo, Ni, Os, Pt, Rh, and W.

Method of claim 9, wherein the dielectric material is selected from SiO₂, Si₃N₄, and GaAs.

Method of claim 9, wherein the resist film comprises a thermoplastic material.

Method of claim 12, further comprising heating the mold, the resist film, and the substrate to a temperature above the glass transition temperature of the resist film prior to contacting the mold with the resist film.

Method of claim 9, further comprising applying an anti-reflective coating to the substrate prior to depositing the wire grid material on the substrate.

Method of claim 9, wherein the substrate is made of a magneto-optical material.

Integrated optical isolator, comprising:

a magneto-optical substrate having a first surface and a second surface, the first and second surfaces being coated with an anti-reflection material; and

a wire grid structure formed on the first surface, the first wire grid structure being adapted to suppress reflection of rejected polarization; and

a second wire grid structure formed on the second surface and rotated relative to the first wire grid structure.

Integrated optical isolator of claim 16, wherein the first wire grid structure comprises a plurality of substantially parallel grid elements, each element comprising a dielectric material sandwiched between two metallic materials.

Integrated optical isolator of claim 17, wherein the metallic materials are selected from the group consisting of Al, Au, Cu, Ir, Mo, Ni, Os, Pt, Rh, and W.

- [c10] The method of claim 9, wherein the metallic materials are selected from the group consisting of Al, Au, Cu, Ir, Mo, Ni, Os, Pt, Rh, and W.
- [c11] The method of claim 9, wherein the dielectric material is selected from the group of Si, SiO₂, and GaAs.
- [c12] The method of claim 9, wherein the resist film comprises a thermoplastic polymer.
- [c13] The method of claim 12, further comprising heating the mold, the resist film and the substrate to a temperature above the glass transition temperature of the thermoplastic polymer prior to contacting the mold with the resist film.
- [c14] The method of claim 9, further comprising applying an anti-reflective coating on the substrate prior to depositing the wire grid material on the substrate.
- [c15] The method of claim 9, wherein the substrate is made of a magneto-optical material
- [c16] An integrated optical isolator, comprising:
 - a magneto-optical substrate having a first surface and a second surface, the first and second surfaces being coated with an anti-reflection material;
 - a first wire grid structure formed on the first surface, the first wire grid structure being adapted to suppress reflection of rejected polarization; and
 - a second wire grid structure formed on the second surface and rotated an angle with respect to the first wire grid structure.
- [c17] The integrated optical isolator of claim 16, wherein the first wire grid structure comprises a plurality of substantially parallel grid elements, each grid element comprising a dielectric material sandwiched between two metallic materials.
- [c18] The integrated optical isolator of claim 17, wherein the metallic materials are selected from the group consisting of Al, Au, Cu, Ir, Mo, Ni, Os, Pt, Rh, and W.

- [c19] The integrated optical isolator of claim 17, wherein the dielectric material is selected from the group of Si, SiO₂, and GaAs.
- [c20] A wire grid polarizer, comprising:
a substrate which is transparent at a selected wavelength; and
an anti-reflective wire grid structure formed on a surface of the substrate.
- [c21] The wire grid polarizer of claim 20, wherein the surface of the substrate on which the anti-reflective wire grid structure is formed is coated with an anti-reflective material.
- [c22] The wire grid polarizer of claim 20, wherein the anti-reflective wire grid structure comprises a plurality of substantially parallel grid elements, each grid element comprising a dielectric material sandwiched between two metallic materials.
- [c23] The wire grid polarizer of claim 22, wherein the metallic materials are selected from the group consisting of Al, Au, Cu, Ir, Mo, Ni, Os, Pt, Rh, and W.
- [c24] The wire grid polarizer of claim 22, wherein the dielectric material is selected from the group of Si, SiO₂, and GaAs.

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